BULLETIN No. 3

OF

THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY

Metal-Glass Museum Cases

of

The Wistar Institute

Three Working Drawings

PHILADELPHIA

1910

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THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY

COMPLIMENTS OF

MILTON J. GREENMAN

Cases

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THE WISTAR INSTITUTE
PHILADELPHIA

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METAL-GLASS MUSEUM CASES

OF

THE WISTAR INSTITUTE

THREE WORKING DRAWINGS

The museum case which exhibits its contents most perfectly is dust, fire and moth proof, presents an inconspicuous architecture, is easily accessible and readily adaptable to various forms of exhibition, would seem to approach the ideal.

I believe it is the experience of a few curators, chiefly abroad, that the metal-glass case offers the most advantages for museum purposes.

Experiments in the construction of metal cases are expensive and it follows, therefore, that few museums have departed from the old method of wood construction.

Various forms of exhibition cases, in the construction of which both wood and metal are almost entirely eliminated, are to be seen on the market. They are not, however, easily adapted to museum purposes since they are not always easily accessible and lack the strength required of a museum case. It has been necessary, therefore, to develop a special case for museum use.

The Wistar Institute began some experiments in its own shop in the construction of metal cases in 1899. These experiments resulted in the development of a practical case of metal-glass construction which is neat in appearance, adaptable to various forms of exhibition and is dust, fire and moth proof. The supports are inconspicuous yet sufficiently strong to carry great weight.

A large number of these cases have been built for the Institute's museum, gradually replacing the older wooden cases.

As these cases have been constructed from standard sections of structural steel, manufactured in this country, and no special shapes have been introduced, it is an easy matter to place them within the reach of any museum. The detailed plans and working drawings of this all American metal-glass museum case are here published for the first time, with the hope that other museums may enjoy the many advantages of such cases.

The form which I present herewith is the Wistar Institute standard free standing case, measuring 122″ long, 84″ high and 44″ wide, with two doors on each side. This size represents a unit which is best adapted to our building. The same form of case has been constructed for special locations in much larger sizes.

The materials used in the construction of this case are the small sizes of ordinary structural (Bessemer) steel,—angles, channels, tees, flats and squares, found everywhere in the market.

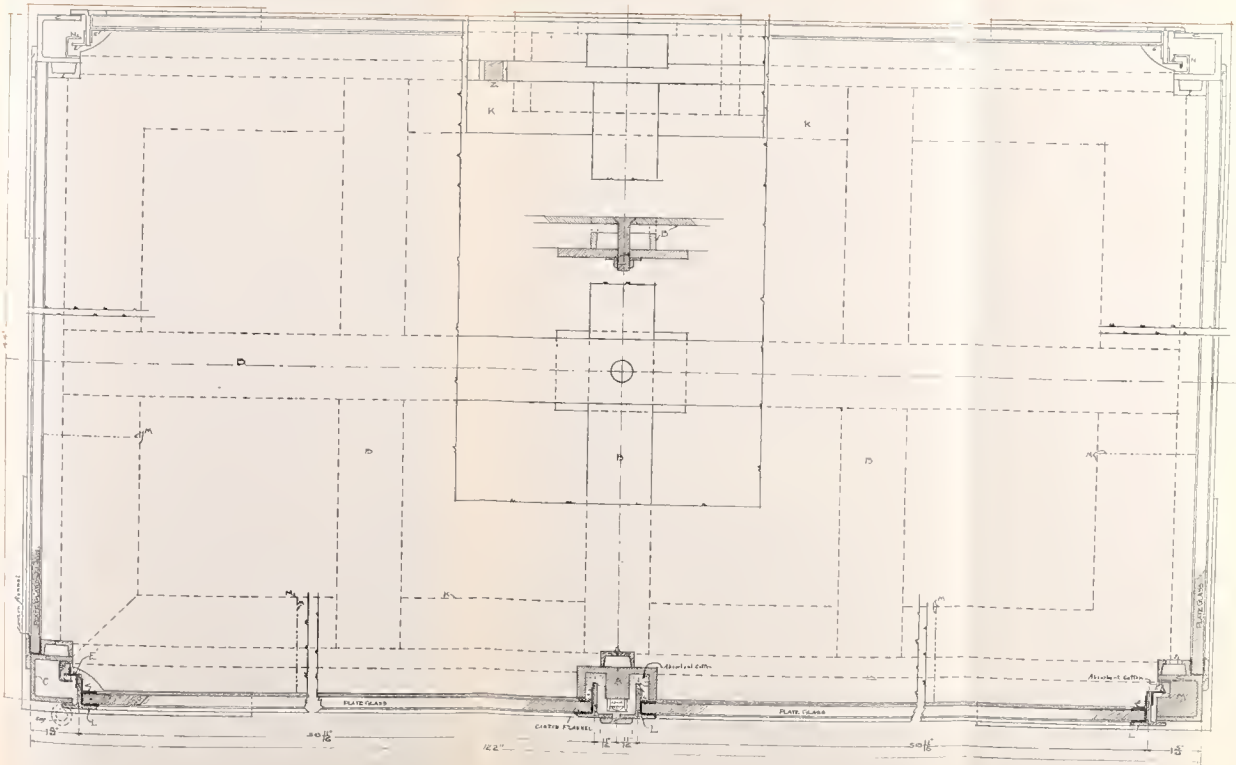
This material is prepared by pickling in diluted sulphuric acid to remove the scale, drawing through a die and straightening. The finished product of cold drawn steel is a bar of slightly smaller section and of increased stiffness having a finish which is easily prepared for electroplating.

The base frame is supported upon six cast iron feet having leveling screws, while at the eight corners of the case special steel castings are inserted to give stiffness to the entire frame.

The door frames are dovetailed at the corners and brazed, and when the glass is clamped in they never sag, a possibility which has been frequently suggested.

The cornice at the top is made from No. 16 planished copper, just as building cornices are made by a tinsmith on his bending machine. The hinges are the ordinary steel hinges of commerce 6″ × 6″ furnished by the manufacturer without screw holes. These are cut down to proper size and an extra strip is brazed on the door side of each hinge to give sufficient strength.

The locks are of the ordinary tumbler variety with a top and bottom bolt. The screws used throughout the entire case with few exceptions are of the oval head type giving a more finished appearance.


K
K
D
D
D
D
PLATE GLASS
PLATE GLASS
CASTOR FLANNEL
Absorbent Cotton
Absorbent Cotton
15
30 1/16
122"
30 1/16
15

SHEET No 1

Polished plate glass is used on all sides and on top of case. The glass is clamped with a double layer of canton flannel about the edge in the door frames and as an extra precaution, a $\frac{1}{16}'' \times \frac{1}{4}''$ strip of soft white pine is p'aced about the edges of the glass.

The top plates of glass rest upon strips of canton flannel and are held in place by their own weight, a $\frac{1}{4}'' \times \frac{1}{2}''$ strip of steel preventing any sliding in a lateral direction.

The case is polished and heavily copper plated before erecting. The copper is then given a dark bronz color by dipping in a diluted solution of Potassium sulphide, is rinsed, dried and burnished with brass scratch brushes and finally given two coats of the best dip lacquer. The grooves into which the door frames shut are packed with absorbent cotton when erected, thus effectually shutting out all dust, at the same time allowing free ingress and egress of air. In erecting these cases care is exercised to see that all joints are absolutely air tight either by the introduction of cotton packing or a thin layer of white lead and oil or other cementing substances.

The following working drawings give in detail the exact method of construction and from these any good metal worker should be able to produce the case.

Working Drawings

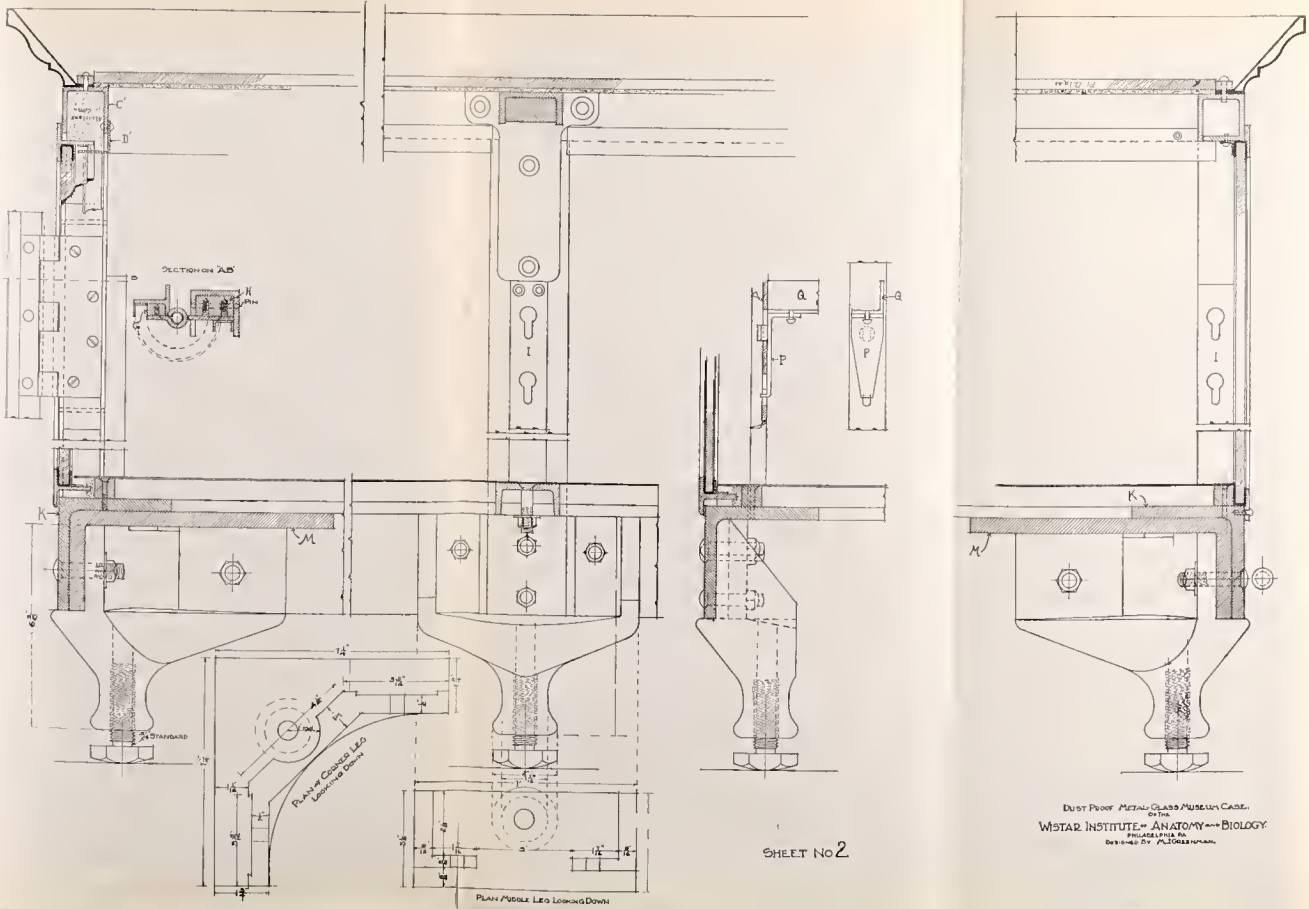
SHEET No. 1 shows, in outline, the base framing plan; horizontal section through left hand corner just above the hinge and through the right hand corner just below the hinge; this latter section is intended to show the spur on the cast steel reinforcing angle or brace M (M, sheet 3) which projects upward into corner piece C (C, sheet 3) to give rigidity to upper frame of case. This sheet also shows section through the center standard A (A, sheet 3) and door frames, indicating how the door frames L L close into grooves of standard A upon an absorbent cotton packing. The standard A is milled from a solid bar $2\frac{1}{2}'' \times 1''$.

The section through the doors (sheet 1) shows the method of clamping the plate glass between E and L, with canton flannel as a packing. Filister head screws hold E firmly against L and the

screw holes in E are oval to allow for variations in thickness of glass. Around the edge of the glass in addition to the double layer of canton flannel a strip of white pine $\frac{1}{16}'' \times \frac{1}{4}''$ is inserted as a cushion to protect the glass. Glass may also be set in red lead putty; sheet 1 shows also the bracket strips I on the center standard and on the corner standards. These bracket strips carry shelving across upon brackets or special angles from one side to the other of the case.

Sheet 1 also shows in dotted outline and section at Z the $\frac{5}{8}''$ square bar which is screwed to the base angle K and forms the support of the outer edges of the floor. The floor is in four pieces; is $\frac{1}{16}''$ thick and at the two door fronts of the case projects over the square bar Z as far as the front edge of standard A, thus affording a groove along the bottom of the case, which is packed with absorbent cotton upon which the edge of the door frame L shuts as it does into the grooves of the upright A. This groove is made continuous around the entire door by the upper frame of the case (C and D, sheet 2) and by the small channel N, which is screwed to upright C and which receives the angle É attached to the heel of the door, thus effectually preventing the entrance of dust. The end glass plates are also set with canton flannel. The floor plates should be screwed fast with canton flannel strips beneath or with white or red lead putty to make them secure against dust.

SHEET No. 2 shows vertical sections through the side of case (doors) indicating the method of hinge construction, and through the end of case, the base angles K cast steel reinforcing angle or brace M and feet, the construction of the upper corners, the method of securing moulding which is made from No. 16 planished copper mitred at the corners. This sheet also shows the upper cast steel bracket of the center standard, the special key-brackets P which fit into the bracket strips and carry cross angles Q for shelves. These key-brackets lock into the bracket strips I by means of a round pin slotted on each side. The cross angles are used in cases where a shelf is desired of the full width of the case or in the middle of the case, or where the weight is too great for the shelf bracket. Usually the shelf brackets shown on sheet 3 are



SHEET NO 2

DUST PROOF METAL GLASS MUSEUM CASE,
OF THE
WISTAR INSTITUTE OF ANATOMY AND BIOLOGY.
PHILADELPHIA PA
DESIGNED BY M. GREENMAN.

used with narrower shelves. The top is glass and rests on canton flannel or putty as may be desired.

The feet are of cast iron. The hinges are of rolled steel of standard size and make, but especially fitted for this case. They are the ordinary $6'' \times 6''$ door hinges without screw holes. They are cut to fit the door frames as shown in section A B, sheet No. 2. Section G (sheet 3) is used to block up the hinge on door frame and section H (sheet 3) is used to fill in the corner upright back of the hinges. These sections are cold drawn to size. There are three hinges to each door.

SHEET No. 3, shows the front and side or end elevation of case, the lock and the method of bolting doors at the top and bottom. Sections A, B, C, D, E, F, G, H, I, K, L, N, represent the materials used in this case. Section N is bent from sheet steel $\frac{1}{16}''$ thick, the finished channel is $\frac{1}{2}''$ wide and $\frac{3}{8}''$ deep, inside. Section A is cold drawn machinery steel $2\frac{1}{2}'' \times 1''$ (Bessemer) and the grooves are milled out. All other sections are ordinary Bessemer steel which have been pickled and cold drawn to size and shape.

The brackets at the tops of center standards (S, sheet 3) the upper corner braces (tripod angles) (T, sheet 3) made in rights and lefts, the braces (M, sheet 3) for lower corners made in rights and lefts are all cast steel and machined to shape. Lower corner brace M has at the angle a projecting limb A A around which the corner upright C fits. Bolted to brace M are the side and end portions of the base frame, section K.

The shelf brackets shown on sheet 3 are made from cold drawn sections machined to size and all joints brazed.

Special care should be exercised to see that all sections are straightened after having been machined; any cutting on one side causes a bar to bend to the opposite side.

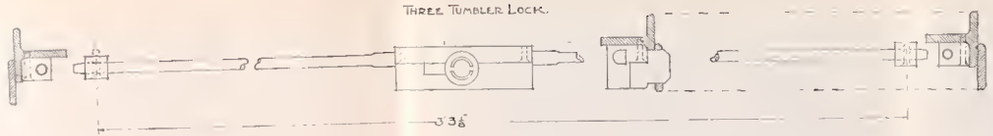
The locks are three tumbler locks made to order from a model giving the exact shape of space to be occupied. The lock operates a bolt at top and bottom of door and the key cannot be removed until the case is locked.

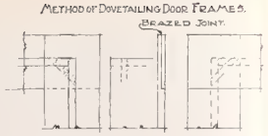
The cost of one of these cases is about the same as that of a similar case constructed of mahogany and plate glass.

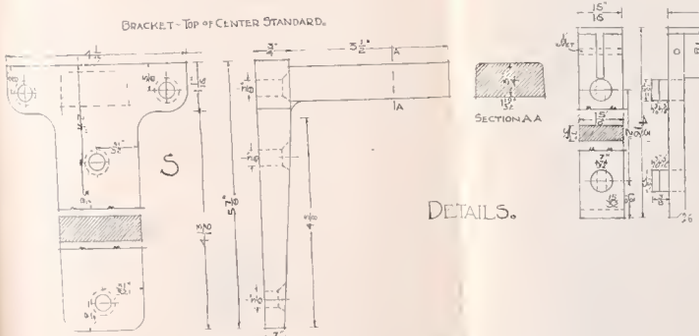
The machine work, electroplating and finishing has been done in the shop of The Wistar Institute under the personal supervision of Mr. S. Noble to whose skill and ingenuity we are much indebted for the success of the case.

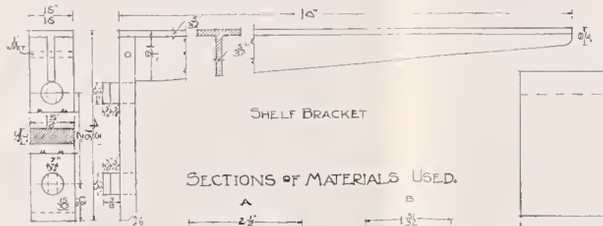
M. J. GREENMAN

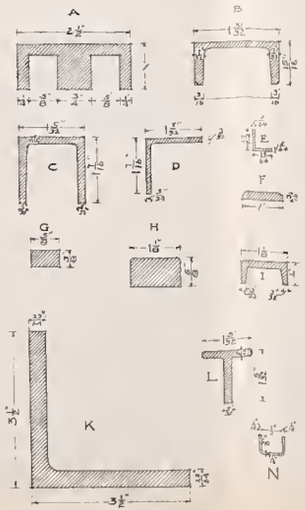
The Wistar Institute of Anatomy and Biology
Philadelphia, Pa., July 28th, 1910

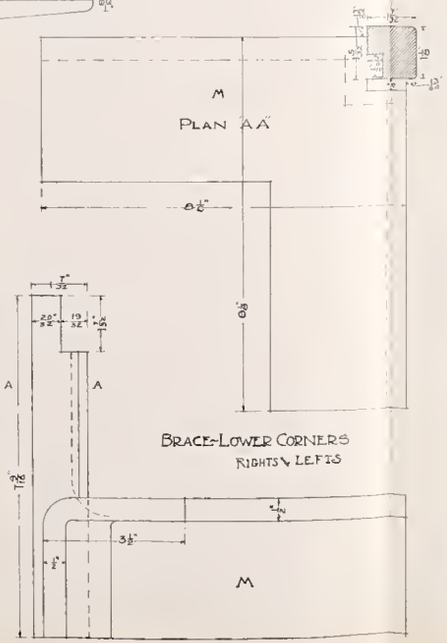


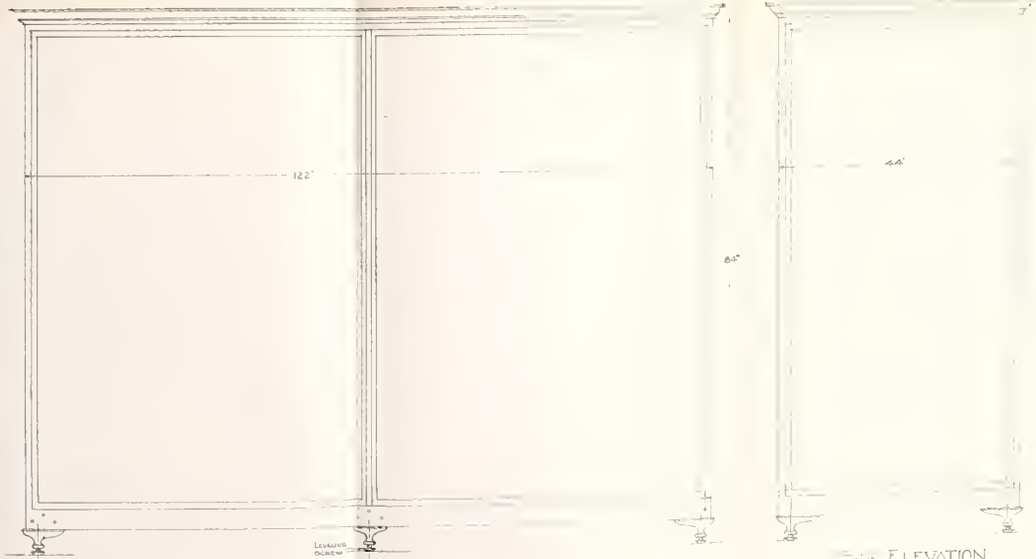


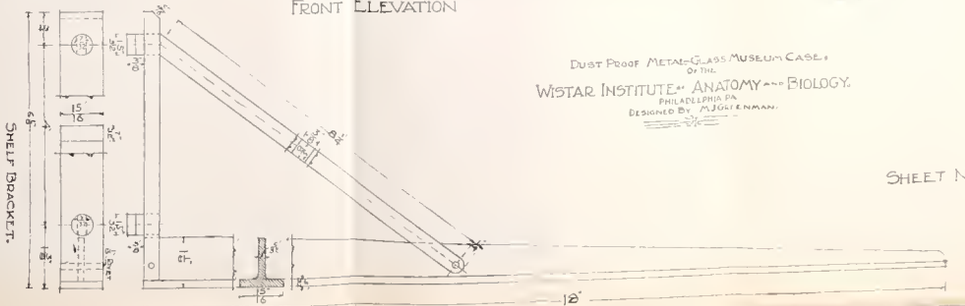












DUST PROOF METAL-GLASS MUSEUM CASES
OF THE
WISTAR INSTITUTE of ANATOMY and BIOLOGY.
PHILADELPHIA PA.
DESIGNED BY M. JOSEPHSON.

SHEET No. 3.